Co-funded by the Erasmus+ Programme of the European Union

EACEA 586029-EPP-1-2017-1-RS-EPPKA2-CBHE-SP
IMPLEMENTATION OF DUAL EDUCATION IN HIGHER EDUCATION OF SERBIA

DualEdu
Erasmus+

Final Conference, Belgrade 8.7.2021

Developed Dual Study Models at the Belgrade Metropolitan University

Prof. dr Dragan Domazet, Belgrade Metropolitan University

Final Conference

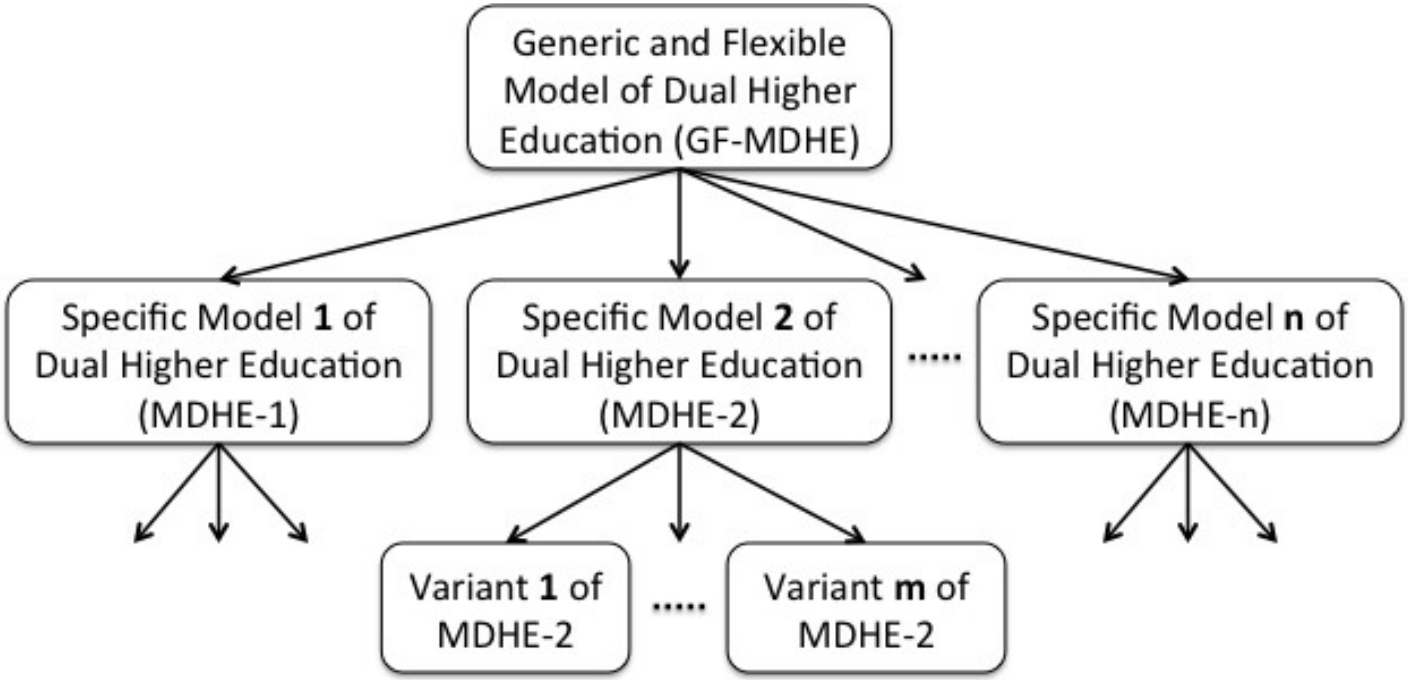
Why flexibility is needed?

- Companies have different needs and requirements
- How to distribute student's time, between universities and companies?
- Obstacles:
  - Universities have their own teaching plans and are reluctant to have a special one for dual students - cost reasons
- Challenge: How to find a compromise?
- **Solution: Use of a flexible and generic model of dual higher eduction**

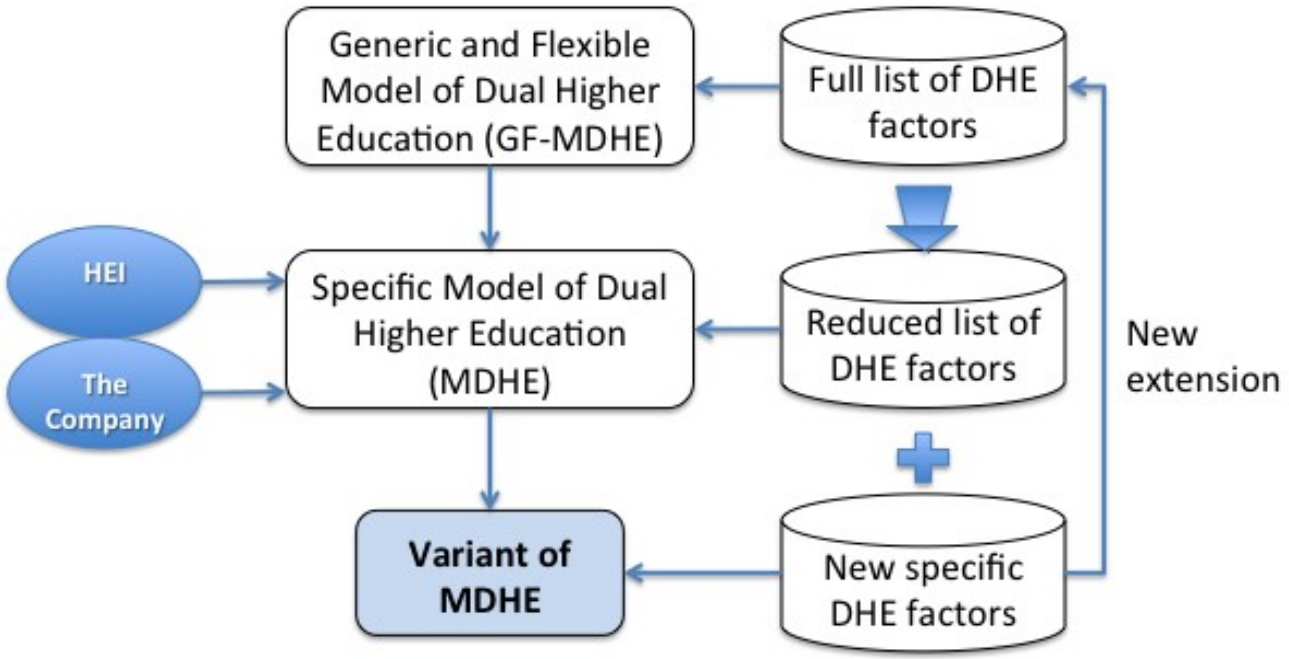
Why a flexible and generic model?

- The needs of companies in different sectors of business life are very different, and also between companies in the same sector
- **Flexibility** should allow the model to be easily adapted to the specific needs of companies and the capabilities of HEIs
- The model should have a sufficient level of **generality**, to be able to include as many specific requirements and needs as possible.

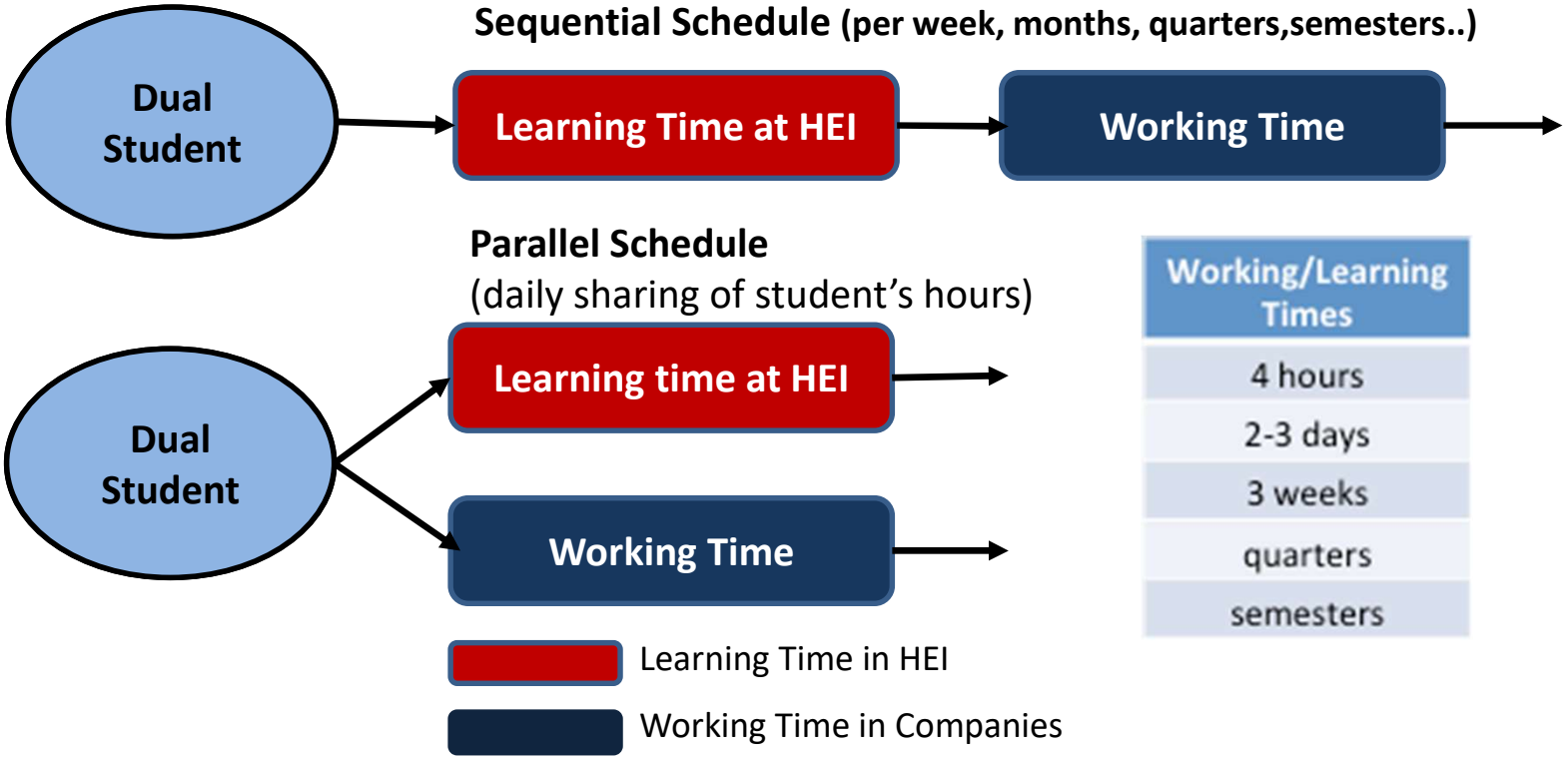
Specific models as derivatives of generic ones



Creation of variants of specific models



Sequential and parallel teaching & working schedules



Working/Learning Times
4 hours
2-3 days
3 weeks
quarters
semesters

Analysis of potential models of dual HE

PARALLEL MODELS OF DUAL HIGHER EDUCATION

Parallel model No. 1 – weekly schedule

PARALLEL MODEL NO. 1: First semester (15 weeks)

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Learning time	3	3	3	3	8	**20**
Teaching time	5	5	5	5		**20**

PARALLEL MODEL NO. 1: Second semester (15 weeks)

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Learning time	3	3	3	3		**12**
Teaching time	5	5	5	5		**20**
Working time					8	**8**

PARALLEL MODE NO. 1: Semesters 3 - 8 (15 weeks)

	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Working time	3	3	3	3	8	**20**
Teaching time	5	5	5	5		**20**

Parallel model No. 1 – yearly schedules

Keys

Working time
Teaching time
Indiviual learning time of students

PARALLEL MODEL NO. 1: First and second semester (15 weeks)

Year 1	October					November				December				January				February				Marcarch				April				May				June				July			August				September				
Day / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Monday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Tuesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Tuesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Wednesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Wednesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Thursday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Thursday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Friday 1	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	
Friday 2	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	
Teaching time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20															**600**
Learning time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20	40	40	40	40	12	12	12	12	12	12	12	12	12	12	12		12	12	12	12	40	40	40	40							40	40	40	40	40		**960**
Working time																					8	8	8	8	8	8	8	8	8	8	8		8	8	8	8					40	40	40						40	40	**320**
	First Semester (15 weeks)																Exams				Second Semester (15 weeks)																Exams										Exams						**1880**

PARALLEL MODE NO. 1: Semesters 3 - 8 (15 weeks)

Year 2 - 4	October					November				December				January				February				Marcarch				April				May				June				July			August				September				
Day / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Monday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Tuesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Tuesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Wednesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Wednesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Thursday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	
Thursday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	
Friday 1	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	
Friday 2	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	TOTAL
Teaching time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20															**600**
Learning time																	40	40	40	40																	40	40	40	40							40	40	40	40	40		**480**
Working time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20					40	40	40						40	40	**800**
	First Semester (15 weeks)																Exams				Second Semester (15 weeks)																Exams										Exams						**1880**

Parallel Model No. 2 – a course block

PARALLEL MODEL NO. 2: Teaching courses in 6 or 5 weeks blocks (for 8 or 6 ECTS)

Cycles	1. week	2. week	3. week	4. week	5. week	6. week	
Monday 1	4	4	4	4	4	4	
Monday 2	4	4	4	4	4	4	
Tuesday 1	4	4	4	4	4	4	
Tuesday 2	4	4	4	4	4	4	
Wednesday 1	4	4	4	4	4	4	
Wednesday 2	4	4	4	4	4	4	
Thursday 1	4	4	4	4	4	4	
Thursday 2	4	4	4	4	4	4	
Friday 1	4	4	4	4	4	4	
Friday 2	4	4	4	4	4	4	TOTAL
Teaching time	16	16	16	16	16	0	80
Learning time	4	4	4	4	4	20	40
Working time	20	20	20	20	20	20	120
						Total Hours	240

Parallel Model No. 2 – yearly schedules

Keys

- Working time
- Teaching time
- Indiviual learning time of students

PARALLEL MODEL NO. 1: First and second semester (15 weeks)

Year 1	October					November					December			January				February				Marcarch				April				May				June				July			August			September			
Day / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Monday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Tuesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Tuesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Wednesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Wednesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Thursday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Thursday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Friday 1	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	4	
Friday 2	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	4	
Teaching time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20																600
Learning time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20	40	40	40	40	12	12	12	12	12	12	12	12	12	12	12		12	12	12	12	40	40	40	40							40	40	40	40			960
Working time																					8	8	8	8	8	8	8	8	8	8	8		8	8	8	8					40	40	40						40	40			320
	First Semester (15 weeks)																Exams				Second Semester (15 weeks)																Exams										Exams						1880

PARALLEL MODE NO. 1: Semesters 3 - 8 (15 weeks)

Year 2 - 4	October					November					December			January				February				Marcarch				April				May				June				July			August			September			
Day / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Monday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Tuesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Tuesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Wednesday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Wednesday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Thursday 1	3	3	3	3	3	3	3	3	3	3	3	3		3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3		3	3	3	3	4	4	4	4				4	4	4	4	4	4	4	4	4	
Thursday 2	5	5	5	5	5	5	5	5	5	5	5	5		5	5	5	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5		5	5	5	5	4	4	4	4				4	4	4	4	4	4	4	4	4	
Friday 1	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	4	
Friday 2	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4				4	4	4	4	4	4	4	4	4	
Teaching time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20																600
Learning time																	40	40	40	40																	40	40	40	40							40	40	40	40			480
Working time	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20					20	20	20	20	20	20	20	20	20	20	20		20	20	20	20													40	40	40			800
	First Semester (15 weeks)																Exams				Second Semester (15 weeks)																Exams										Exams						1880

Parallel model No. 3 – courses in blocks (yearly schedules)

PARALLEL MODEL NO. 3: Teaching courses in 6 or 5 weeks blocks (for 8 or 6 ECTS)

	October						November					December		January						February						Marcarch						April						May						June						July						August			September						
Year 1-4	**Course 1 8 ECTS**						**Course 2 8 ECTS**							**Course 3 8 ECTS**						**Course 4 8 ECTS**						**Course 5 6 ECTS**							**Course 6 8 ECTS**						**Course 7 6 ECTS**							**Course 8 8 ECTS**																				
Day \ Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Tuesday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Wednesday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Thursday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Friday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	TOTAL
Teaching time	40	8	8	8	8	0	40	8	8	8	8	0		40	8	8	8	8	0	40	8	8	8	8	0	40	8	8	8	0			40	8	8	8	8	0	40	8	8	8	0				40	8	8	8	8	0	560
Learning time						24						24							24						24					24							24						24						24						24	192
Working time	0	32	32	32	32	16	0	32	32	32	32	16		0	32	32	32	32	16	0	32	32	32	32	16	0	32	32	32	32	16		0	32	32	32	32	16	0	32	32	32	16				0	32	32	32	32	16	1088
																																																											1840

Analysis of potential models of dual HE

SEQUENTIAL MODELS OF DUAL HIGHER EDUCATION

Sequential model No. 1

SEQUENTIAL MODEL NO. 1 - F2F teaching 2 semesters with 12 weeks working summer cycles

	12 weeks	1 week	3 weeks	4 weeks	11 weeks	1 week	4 weeks	4 weeks	12 weeks	Teaching	Learning	Working	
Hours/week	20		20	40	20		20	40	40	**600**	320	480	
Hours/week	20		20		20		20				600		
	First Semester			Exams	Second Semester			Exams	**Total:**	**600**	**920**	480	**2000**

SEQUENTIAL MODEL NO.3 - F2F teaching with12 weeks cycles during all four years

	12 weeks	1 week	12 weeks	6 weeks	1 week	6 weeks	2 weeks	12 weeks	Teaching	Learning	Working	
Hours/week	25		40	25		25		40	600		960	
Hours/week	15			15		15				360		
	T&L		Working	Teaching&Learning				Working	**600**	**360**	**960**	**1920**

Sequential model No. 1 – yearly schedule

Keys

- Working time
- Teaching time
- Indiviual learning time of students
- Free time

SEQUENTIAL MODEL - F2F teaching with 12 weeks woring summer cycles

| Year 1 - 4 | Oktober | | | | | November | | | December | | | | January | | | | February | | | | March | | | | | April | | | | | May | | | | June | | | | July | | | | August | | | | | | | | septembar | | | | |
|---|---|---

Sequential model No. 2 – a weekly schedule

SEQUENTIAL MODEL NO. 2 - 2,5 days time cycles in semesters 1 &

Monday	Tuesday	Vednesda	Thursday	Friday	Total	
5	5	5	5	4	20	4
3	3	3	3	4	0	16
				Total:	**20**	**20**

SEQUENTIAL MODEL NO. 2 - 2,5 days time cycles in semesters 3-8

Monday	Tuesday	Vednesda	Thursday	Friday	Total	
4	4	4	4	4	12	8
4	4	4	4	4	8	12
				Total:	**20**	**20**

Sequential model No. 2 – yearly schedules

Keys

- Working time
- Teaching time
- Indiviual learning time of students
- Free time

SEQUENTIAL MODEL NO. 2 - 2,5 days time cycles in semesters 1 & 2

| Year 1 | Oktober | | | | | | | | | | | | | November | | | | December | | | | January | | | | | February | | | | March | | | | April | | | | | May | | | | June | | | | July | | | | August | | | | | | | | september | | | | | | | |
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Sequential model No. 3

SEQUENTIAL MODEL NO.3 - F2F teaching with12 weeks cycles during all four years

	12 weeks	1 week	12 weeks	6 weeks	1 week	6 weeks	2 weeks	12 weeks	Teaching	Learning	Working	
Hours/week	25		40	25		25		40	600		960	
Hours/week	15			15		15				360		
	T&L		Working	Teaching&Learning				Working	**600**	**360**	**960**	**1920**

Sequential model No. 3 – yearly schedule

SEQUENTIAL MODEL NO.3 - F2F teaching with 3 months cycles during all four years

Year 1 - 4	Oktober					November				December				January				February				March				April					May					June				July				August				september			
Day \ Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday 1	5	5	5	5	5	5	5	5	5	5	5	5		4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5		5	5	5	5	5	5			4	4	4	4	4	4	4	4	4	4	4	4	
Monday 2	3	3	3	3	3	3	3	3	3	3	3	3		4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3		3	3	3	3	3	3			4	4	4	4	4	4	4	4	4	4	4	4	
Tuesday 1	5	5	5	5	5	5	5	5	5	5	5	5		4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5		5	5	5	5	5	5			4	4	4	4	4	4	4	4	4	4	4	4	
Tuesday 2	3	3	3	3	3	3	3	3	3	3	3	3		4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3		3	3	3	3	3	3			4	4	4	4	4	4	4	4	4	4	4	4	
Wednesday 1	5	5	5	5	5	5	5	5	5	5	5	5		4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5		5	5	5	5	5	5			4	4	4	4	4	4	4	4	4	4	4	4	
Wednesday 2	3	3	3	3	3	3	3	3	3	3	3	3		4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3		3	3	3	3	3	3			4	4	4	4	4	4	4	4	4	4	4	4	
Thursday 1	5	5	5	5	5	5	5	5	5	5	5	5		4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5		5	5	5	5	5	5			4	4	4	4	4	4	4	4	4	4	4	4	
Thursday 2	3	3	3	3	3	3	3	3	3	3	3	3		4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3		3	3	3	3	3	3			4	4	4	4	4	4	4	4	4	4	4	4	
Friday 1	5	5	5	5	5	5	5	5	5	5	5	5		4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5		5	5	5	5	5	5			4	4	4	4	4	4	4	4	4	4	4	4	
Friday 2	3	3	3	3	3	3	3	3	3	3	3	3		4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3		3	3	3	3	3	3			4	4	4	4	4	4	4	4	4	4	4	4	
Teaching Hours	25	25	25	25	25	25	25	25	25	25	25	25														25	25	25	25	25	25		25	25	25	25	25	25															600
Working Hours														40	40	40	40	40	40	40	40	40	40	40	40															40	40	40	40	40	40	40	40	40	40	40	40	960
Learning Hours	15	15	15	15	15	15	15	15	15	15	15	15														15	15	15	15	15	15		15	15	15	15	15	15															360
	Teaching & Learning Cycle (12 weeks)													Working Cycle (12 weeks)												Teaching & Learning Cycle (12 weeks)													Working Cycle (12 weeks)												1920

Sequential model No. 4 – courses in blocks

SEQUENTIAL MODEL NO. 4 - F2F teaching course blocks with 2,5 days cycles during all four years

	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Course 7	Course 8	TOTAL
Teaching Hours	80	80	80	80	64	80	64	80	**608**
Working Hours	120	120	120	120	100	120	100	120	**920**
Learning Hours	40	40	40	40	36	40	36	40	**312**
									1840

Year 1 - 4	**Course 6 8 ECTS**						**Course 76 ECTS**				
Day \ Week	33	34	35	36	37	38	39	40	41	42	43
Monday	8	8	8	8	8	8	8	8	8	8	8
Tuesday	8	8	8	8	8	8	8	8	8	8	8
Wednesday	4	4	4	4	4	4	4	4	4	4	4
Wednesday	4	4	4	4	4	4	4	4	4	4	4
Thursday	8	8	8	8	8	8	8	8	8	8	8
Friday	8	8	8	8	8	8	8	8	8	8	8
Teaching Hours	16	16	16	16	16		16	16	16	16	
Working Hours	20	20	20	20	20	20	20	20	20	20	20
Learning Hours	4	4	4	4	4	20	4	4	4	4	20

Sequential model No. 4 – course blocks

SEQUENTIAL MODEL NO. 4 - F2F teaching course blocks with 2,5 days cycles during all four years

80 64

Year 1 - 4	Course 1					8 ECTS	Course 2					8 ECTS		Course 3					8 ECTS	Course 4					8 ECTS	Course 56 ECTS							Course 6					8 ECTS	Course 76 ECTS								Course 8					8 ECTS	
Day \ Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Monday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Tuesday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Wednesday	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4				4	4	4	4	4	4	
Wednesday	4	4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4				4	4	4	4	4	4	
Thursday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Friday	8	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8	8	8	8	8	8				8	8	8	8	8	8	
Teaching Hours	16	16	16	16	16		16	16	16	16	16			16	16	16	16	16		16	16	16	16	16		16	16	16	16				16	16	16	16	16		16	16	16	16					16	16	16	16	16		**608**
Working Hours	20	20	20	20	20	20	20	20	20	20	20	20		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20			20	20	20	20	20	20	20	20	20	20	20				20	20	20	20	20	20	**920**
Learning Hours	4	4	4	4	4	20	4	4	4	4	4	20		4	4	4	4	4	20	4	4	4	4	4	20	4	4	4	4	20			4	4	4	4	4	20	4	4	4	4	20				4	4	4	4	4	20	**312**
																																					64									80						**1840**

Implementation problems of models for DHE (1)

- Higher education institutions (HEI) can not offer simultaneously all these models.
  - Organizational, space, staff and cost constraints
- Realistically, HEI in Serbia can implement models with this variants:
  - Face to Faces (F2F) teaching/learning models
  - Online teaching/learning models
  - Parallel or sequential models
  - Teaching with course blocks requires additional courses for dual students

Implementation problems of models for DHE (2)

- Dual education assumes that exist needs of companies and a commitment to recruit students as future employees
  - In Serbia, only IT companies show interest for dual higher education and some engineering companies
  - Dual higher education will not be massive and dominant
  - HEIs cannot expect large numbers of dual students
- There is a fear in companies that their dual students will not accept their job offers and their investment in mentoring and student education is lost in these cases.

BMU models for dual studies/dual higher education

- F2F Parallel Model A
- Online Parallel Model B
- F2F Sequential Model

- All models are analysed and passed the simulation test
- They satisfy accreditation requirement specified by Standard 17 Dual Studies
- No needs for additional courses only for dual students

Parallel Model A

PARALLEL MODEL A

Year 1	October				November				December				January				Debruary				March				April				May				June				July				August				September			
hours weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
4	Fall Semester TEACHING																Exams				Spring Semester TEACHING																Exams				Summer hollydays and non-working days annualy							Exams					
8																																																			
12																																																			
16																																																			
20																																																			
24	LEARNING AT HOME																				LEARNING AT HOME																										LEARNING AT HOME						
28																																																		
32																																																			
36	LEARNING THROUGH WORK 8 hours per week																				LEARNING THROUGH WORK 8 hours per week																										8 hours per week						
40																																																		

Year 2 & 3	October				November				December				January				Debruary				March				April				May				June				July				August				September			
hours weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
4	Fall Semester TEACHING																Exams				Spring Semester TEACHING																Exams				Summer hollydays and non-working days annualy							Exams					
8																																																			
12																																																			
16																																																			
20																																																			
24	LEARNING AT HOME																				LEARNING AT HOME																										LEARNING AT HOME						
28	LEARNING THROUGH WORK																				LEARNING THROUGH WORK																															
32	16 hours per week																				16 hours per week																										16 hours per week						
36																																																		
40																																																		

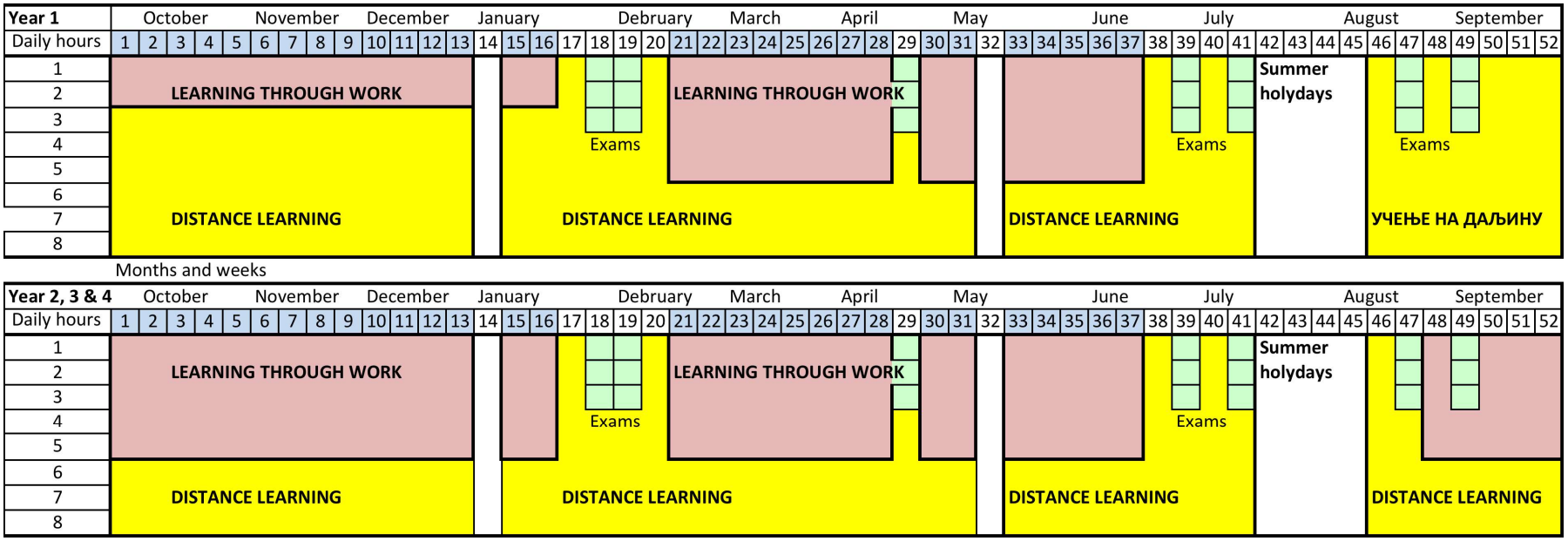
Year 4	October				November				December				January				Debruary				March				April				May				June				July				August				September			
hours weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
4	Fall Semester TEACHING 18 часова недељно																Exams				Spring Semester TEACHING 12 hours per week																Exams				Summer hollydays and non-working days annualy												
8																																																		
12																																																		
16																																																		
20																					LEARNING THROUGH WORK 28 hours per week																															
24	LEARNING AT HOME																																															LEARNING AT HOME						
28	LEARNING THROUGH WORK 16 hours per week																																																		
32																																																		16 hours per week						
36																																																		
40																																																		

F2F teaching & learning through work in parallel

Least learning through work in Year 1 & the greatest learning through work in Year 4

Parallel Model B

PARALLEL MODEL B



Distance/online learning and learning through work in parallel
Intensive learning through work in fall semester – 4th year

Sequential Model

SEQUENTIAL MODEL

Year 1-3	October				November				December				January				Debruary				March				April				May				June				July				August				September											
hours \ week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
4	Fall Semester TEACHING																				Spring Semester TEACHING																																																
8																		

Achieved results with specified models

- Flexibility:
  - Dual students can choose F2F or online dual studies
  - Dual students can choose F2F studies and learning through work each summer
- Organizational aspect:
  - It is easy for HEI to offer if they offer also online education
  - Dual students study together with other students
  - No need for additional courses for dual students

THANK YOU FOR YOUR ATTENTION!



Parole: ON THE ROAD TO SUCCESS, THERE ARE NO SHORTCUTS